



HINGHAM CONTRIBUTORY RETIREMENT SYSTEM

ACTUARIAL VALUATION as of

January 1, 2014

Prepared by:

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September 2, 2014

Hingham Contributory Retirement Board
Town of Hingham
210 Central Street
Hingham, MA 02043

Dear Board Members:

We are pleased to present the enclosed report summarizing the results of our actuarial valuation of the Hingham Contributory Retirement System as of January 1, 2014.

Our valuation was performed in accordance with the provisions contained in Chapter 32 of the Massachusetts General Laws, "M.G.L.", as of January 1, 2014 and GASB Statement No. 25, Financial Reporting for Defined Benefit Pension Plans and Note Disclosures for Defined Contribution Plans (GASB 25) and GASB Statement No. 27, Accounting for Pensions by State and Local Governmental Employers (GASB 27).

The principal results of our valuation are summarized in Section 2. The summary of Plan provisions and actuarial methods and assumptions are shown in Sections 5 and 6, respectively. Section 7 summarizes the demographic profile of active members and retired plan members. Asset information and actuarial liabilities are presented in Section 2. The development of the required appropriations pursuant to Chapter 32 of the M.G.L. is shown in Section 3. The required disclosures under GASB 25, GASB 27 and PERAC are presented in Section 4.

We also provide a 30-year forecast of the required appropriations and cash flows in Section 3.

Our actuarial valuation is based on an investment return rate of 7.75%, compounded annually. Our calculations were based on participant census and asset data and other information provided by the Hingham Contributory Retirement System and the benefit provisions of Chapter 32 of the M.G.L. as of January 1, 2014.

K M S A C T U A R I E S

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Our valuation follows generally accepted actuarial methods and we perform such tests as we consider necessary to assure the accuracy of the results. The amounts presented in this report have been appropriately determined according to the actuarial assumptions and methods stated herein.

We appreciate this opportunity to be of service to the Hingham Contributory Retirement Board. We are available to answer any questions with respect to our valuation.

Respectfully submitted,

A handwritten signature in black ink that reads "Linda Bournival". The signature is written in a cursive style with a large, looped "L" and a stylized "B".

Linda L. Bournival, FSA
Member, American Academy of Actuaries

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ACTUARIAL CERTIFICATION

This report presents the results of the Actuarial Valuation for the Hingham Contributory Retirement System as of January 1, 2014. The report presents the funding schedule contribution amounts for the fiscal years beginning 2015 and accounting and financial reporting information in accordance with Statement Numbers 25 and 27 of the Governmental Accounting Standards Board.

This valuation is based upon member data provided by the Retirement Board and asset information reported to the Public Employee Retirement Administration Commission (PERAC) by the Hingham Contributory Retirement System. Although we did not audit the data used in the valuation, we believe that the information is complete and reliable.

This report was completed in accordance with generally accepted actuarial standards and procedures, and conforms to the Code of Professional Conduct of the American Academy of Actuaries. The actuarial assumptions used in the determination of costs are reasonably related to the experience of the System and to reasonable expectations, and represent our best estimate of anticipated long-term experience under the System.

Future actuarial valuation results may differ significantly from the current results presented in this report. Examples of potential sources of volatility include plan experience differing from that anticipated by the economic or demographic assumptions, the effect of new entrants, changes in economic or demographic assumptions, the effect of law changes and the delayed effect of smoothing techniques.

This report is intended for the sole use of the Hingham Contributory Retirement System and is intended to provide information to comply with the stated purpose of the report. It may not be appropriate for other purposes.

The undersigned credentialed actuaries are Members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries necessary to render the actuarial opinion contained herein. They are available to answer any questions with regard to this report.

Respectfully submitted,



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SECTION 1 - SUMMARY

Background

We have completed the Actuarial Valuation of the Hingham Contributory Retirement System as of January 1, 2014. This valuation is based upon census data provided by the Retirement Board and asset information reported to the Public Employee Retirement Administration Commission (PERAC) by the Hingham Contributory Retirement Board. Information for the prior valuation completed as of January 1, 2012 was obtained from the valuation report prepared by KMS Actuaries, LLC.

Massachusetts General Laws

The valuation was prepared in accordance with Chapter 32 of the Massachusetts General Laws ("M.G.L."). The results are based on the active, inactive and retired members and beneficiaries as of January 1, 2014, the assets as of December 31, 2013, assumptions regarding investment returns, salary increases, death, turnover, disability and retirement.

The valuation does not take into consideration:

- Changes in the law after the valuation date,
- State-mandated benefits and
- Cost-of-living increases granted to members in pay status between 1982 and 1997.

GASB Statement Numbers 25 and 27

The Governmental Accounting Standards Board (**GASB**) is responsible for establishing accounting standards for governmental entities. Calculations developed in accordance with GASB standards are required when providing financial statements.

GASB Statement Number 25 (**GASB 25**) establishes financial reporting standards for defined benefit pension plans of state and local governmental entities. The Statement establishes a framework that distinguishes between two categories of information: current financial information about plan assets and financial activities and actuarially determined information about the funded status of the plan and the progress being made in accumulating sufficient assets to pay benefits when due.

GASB Statement Number 27 (**GASB 27**) establishes standards for the measurement, recognition, and display of pension expense and related liabilities, assets, note disclosures, and, if applicable, required supplementary information in the financial reports of state and local governmental employers. Employers are required to measure and disclose an amount for annual pension cost on the accrual basis of accounting, regardless of the amount recognized as pension expense on the accrual basis. Annual pension cost should be equal to the employer's Annual Required Contribution (ARC) to the plan.

The required disclosures under the GASB Statements are presented in Section 4.

SECTION 1 - SUMMARY

GASB Statement Numbers 67 and 68

In June 2012, the GASB approved two related Statements that significantly change the way pension plans and governments will account and report pension liabilities. Effective for plans with fiscal years beginning after June 15, 2013, GASB Statement No. 67, Financial Reporting for Pension Plans, replaces the requirements of Statement No. 25 and effective for employers with fiscal years beginning after June 15, 2014, GASB Statement No. 68, Accounting and Financial Reporting for Pensions, replaces the requirements of Statement No. 27.

The new pension standards reflect changes from those currently in place regarding how governments calculate total pension liability and pension expense. Further, the new standards contain requirements for disclosing information in the notes to financial statements and presenting required supplementary information following the notes.

The required disclosures and notes under the new GASB Statements for the fiscal year ending December 31, 2014 will be provided in a separate report.

Actuarial Valuation

During the two years since the last valuation, the total unfunded actuarial accrued liability of the System was expected to decrease from \$35,067,505 as of January 1, 2012 to \$32,790,574 as of January 1, 2014, for a total decrease of \$2,276,931. The actual unfunded actuarial accrued liability, before any assumption or plan changes, was \$38,436,358, resulting in an actuarial loss of \$5,645,784. The actuarial loss was primarily due to an asset loss of \$4,060,201 and a demographic experience loss of \$1,585,583. The details of the gain and loss analysis are provided in Exhibit 2.6.

Appropriations

The funding appropriation for each year is computed as the sum of the normal cost and an amortization payment to pay off the Unfunded Actuarial Liability, adjusted for annual payments of the appropriation made at the beginning of each fiscal year. The appropriation calculated as of the January 1, 2014 valuation is \$4,146,583, and is made up of a normal cost payment of \$1,619,429 and an amortization payment of \$2,527,154. The amortization method is an increasing amortization of the unfunded actuarial accrued liability at 4% over 24 years and is expected to fully pay the unfunded actuarial accrued liability by the year 2038. The development of the appropriation as of January 1, 2014 is presented in Exhibit 3.1.

For fiscal year 2015, we show the actual appropriation developed under the previous funding schedule and reported on the PERAC "Required Fiscal Year 2015 Appropriation" letter dated October 28, 2013 of \$4,182,459. For fiscal year 2016, we developed an annual appropriation of \$4,323,161, which is made up of a normal cost of \$1,710,638 and payment toward the unfunded actuarial accrued liability of \$2,612,523. The unfunded actuarial accrued liability is expected to be fully paid by 2038. The current funding schedule is shown in Exhibit 3.2.

SECTION 1 - SUMMARY

A summary of principal valuation results from the current valuation and the prior valuation follows. Changes in actuarial assumptions and methods and Plan provisions are discussed below, as well as changes in census data and asset information.

Valuation Date	<u>1/1/2014</u>	<u>1/1/2012</u>	<u>Increase/ (Decrease)</u>
Summary of Member Data			
Active Members	597	533	12.0%
Average Age	48.8	49.2	(0.8%)
Average Service	10.8	10.7	0.9%
Valuation Salary	\$27,037,796	\$23,273,757	16.2%
Average Salary	\$45,289	\$43,666	3.7%
Retired Members and Beneficiaries	280	270	3.7%
Average Age	73.9	73.4	0.7%
Total Annual Pension	\$6,354,824	\$5,965,983	6.5%
Average Annual Pension	\$22,696	\$22,096	2.7%
State Reimbursed COLAs	\$83,780	\$100,765	(16.9%)
Total System-Funded Pension	\$6,271,044	\$5,865,218	6.9%
Disabled Members	14	15	(6.7%)
Average Age	68.6	66.9	2.5%
Total Annual Pension	\$431,245	\$433,057	(0.4%)
Average Annual Pension	\$30,803	\$28,870	6.7%
State Reimbursed COLAs	\$12,317	\$13,001	(5.3%)
Total System-Funded Pension	\$418,928	\$420,056	(0.3%)
Inactive Members	142	125	13.6%
Annuity Savings Fund	\$824,297	\$1,062,100	(22.4%)
Actuarial Accrued Liability (AAL)	\$130,408,659	\$114,766,986	13.6%
Assets			
Market Value of Assets	\$91,719,367	\$73,406,142	24.9%
Actuarial Value of Assets	88,826,629	79,699,481	11.5%
Unfunded Accrued Liability	\$41,582,030	\$35,067,505	18.6%
Funded Status	68.1%	69.4%	(1.9%)
Normal Cost			
Employer	\$1,469,429	\$1,133,230	29.7%
Employee	2,372,795	1,973,652	20.2%
Administrative Expenses	150,000	150,000	0.0%
Total Normal Cost	\$3,992,224	\$3,256,882	22.6%

Hingham Contributory Retirement System
Actuarial Valuation as of January 1, 2014

SECTION 1 - SUMMARY

Valuation Date	<u>1/1/2014</u>	<u>1/1/2012</u>	<u>Increase/ (Decrease)</u>
Appropriations			
Fiscal Year 2014	N/A	\$4,045,905	N/A
Fiscal Year 2015	\$4,182,459	\$4,182,459	0.0%
Fiscal Year 2016	\$4,323,161	\$4,323,161	0.0%
Fiscal Year 2017	\$4,468,111	\$4,468,111	0.0%

Actuarial Assumptions and Methods

Some Actuarial Assumptions and Methods used in this valuation have been changed since the last valuation, including mortality improvement applied to the RP-2000 Mortality Table projected to 2014 (previously projected to 2012) and decreasing the investment return rate from 8% to 7.75%. Changing these assumptions resulted in a net increase in the unfunded actuarial accrued liability of \$3,145,672 and an increase in the employer normal cost of \$370,762. The Actuarial Assumptions and Methods utilized in this valuation are detailed in Section 6, Actuarial Assumptions and Methods.

Plan Provisions

Chapter 176 of the Acts of 2011 was incorporated in this valuation, which changes many of the benefit features for members hired on or after April 2, 2012. The Plan provisions utilized in this valuation are detailed in Section 5, Summary of Plan Provisions.

Census Data

As of January 1, 2014, there are 597 active members who may be eligible for benefits in the future, 280 retirees and beneficiaries, 142 inactives and 14 disabled retirees. Summaries of the active, retired and disabled employees are included in Section 7, Demographic Information.

Assets

This valuation is based upon asset information reported to the Public Employee Retirement Administration Commission (PERAC) by the Hingham Contributory Retirement Board. The market value of assets increased from \$73,406,142 as of January 1, 2012 to \$91,719,367 as of January 1, 2014. During the plan years ended 2012 and 2013, the market value rates of return were 11.44% and 12.22%, respectively.

The actuarial value of assets increased from \$79,699,481 as of January 1, 2012 to \$88,826,629 as of January 1, 2014. During the plan years ended 2012 and 2013, the rates of return on the actuarial value of assets were 1.05% and 10.38%, respectively.

SECTION 2 - PRINCIPAL VALUATION RESULTS

Exhibit 2.1 - Plan Assets

Asset information is reported annually to the Public Employee Retirement Administration Commission by the Hingham Contributory Retirement System. The Market Value of Assets for the two most recent calendar years are as follows:

Calendar Year	2013	2012
Trust Fund Composition at Year-End		
Cash	\$359,477	\$479,785
Short-Term Investments	0	0
Fixed Income Securities	0	0
Equities	0	0
Pooled Short Term Funds	0	0
Pooled Domestic Equity Funds	27,828,121	20,830,614
Pooled International Equity Funds	14,324,730	11,533,137
Pooled Global Equity Funds	0	0
Pooled Domestic Fixed Income Funds	33,006,300	34,000,257
Pooled International Fixed Income Funds	0	0
Pooled Global Fixed Income Funds	0	0
Pooled Alternative Investments	385,727	123,740
Pooled Real Estate Funds	5,064,615	4,595,609
Pooled Domestic Balanced Funds	0	0
Pooled International Balanced Funds	3,642,122	3,694,974
Hedge Funds	4,568,444	4,059,362
PRIT Cash	22	24
PRIT Fund	2,377,354	2,162,769
Interest Due & Accrued	0	0
Prepaid Expenses	0	0
Accounts Receivable	170,852	107,983
Land	0	0
Buildings	0	0
Accumulated Depreciation - Buildings	0	0
Accounts Payable	(8,397)	(18,512)
Total Market Value of Assets	<u>\$91,719,367</u>	<u>\$81,569,742</u>

SECTION 2 - PRINCIPAL VALUATION RESULTS

Exhibit 2.1 - Plan Assets

Calendar Year	2013	2012
Funds		
Annuity Savings Fund	\$23,784,079	\$21,661,107
Annuity Reserve Fund	5,656,032	5,991,257
Military Service Fund	14,511	14,497
Pension Fund	4,792,910	4,625,050
Expense Fund	0	0
Pension Reserve Fund	57,471,835	49,277,831
Total Market Value of Assets	<u>\$91,719,367</u>	<u>\$81,569,742</u>
Asset Activity		
Market value as of Beginning of Year	\$81,569,742	\$73,406,142
Contributions and Receipts	7,435,310	6,992,509
Benefit Payments and Expenses	(7,264,781)	(7,216,863)
Investment Return	9,979,096	8,387,954
Market Value as of End of Year	\$91,719,367	\$81,569,742
Computed Rate of Return	12.22%	11.44%

Returns and annualized past returns developed by PERAC are shown below. Information is obtained from the Annual Investment Reports published by PERAC for the years shown.

Year	1-Year Return	5-Year Return	Return (Since 1985)
2013	12.37%	11.22%	9.42%
2012	12.19%	1.35%	9.31%
2011	0.97%	1.32%	9.21%
2010	13.56%	4.34%	9.54%
2009	17.75%	4.19%	9.38%
2008	-29.39%	3.56%	9.04%
2007	12.02%	16.35%	11.12%
2006	16.92%	11.64%	11.08%
2005	12.75%	7.03%	10.81%
2004	14.25%	4.24%	10.72%

SECTION 2 - PRINCIPAL VALUATION RESULTS

Exhibit 2.1 - Plan Assets

Valuation Date	1/1/2014	1/1/2013	1/1/2012
1. Market Value of Assets as of prior January 1	\$81,569,742	\$73,406,142	\$73,244,374
a. Prior Year Contributions and Receipts	7,435,310	6,992,509	6,323,581
b. Prior Year Benefit Payments and Expenses	(7,264,781)	(7,216,863)	(6,901,032)
c. Expected Investment Return Rate	8.00%	8.00%	8.00%
d. Expected Investment Return	6,532,401	5,863,517	5,836,452
e. Expected Market Value of Assets as of Valuation Date	\$88,272,672	\$79,045,305	\$78,503,375
2. Prior Year Gain / (Loss)			
a. Market Value of Assets as of January 1	\$91,719,367	\$81,569,742	\$73,406,142
b. Expected Market Value of Assets	88,272,672	79,045,305	78,503,375
c. Prior Year Gain / (Loss)	3,446,695	2,524,437	(5,097,233)
3. Phase-In of Asset Gains and Losses			
	Unrecognized	Unrecognized	Unrecognized
Plan Year	Gain / (Loss)	Gain / (Loss)	Gain / (Loss)
a. 2013	\$3,446,695	\$2,757,356	-
b. 2012	2,524,437	1,514,662	2,019,550
c. 2011	(5,097,233)	(2,038,893)	(3,058,340)
d. 2010	3,298,066	659,613	1,319,226
e. 2009	4,884,363	-	976,873
f. 2008	(30,740,695)	-	-
g. Total deferred gains/(losses)	2,892,738	1,257,309	(6,293,339)
4. Actuarial Value of Assets			
a. Market Value of Assets Less Unrecognized Gain / (Loss)	\$88,826,629	\$80,312,433	\$79,699,481
b. 90% of Market Value of Assets	82,547,430	73,412,768	66,065,528
c. 110% of Market Value of Assets	100,891,304	89,726,716	80,746,756
d. Actuarial Value of Assets, a., but not less than b. and not greater than c.	\$88,826,629	\$80,312,433	\$79,699,481
e. Ratio of Actuarial Value of Assets to Market Value of Assets	96.85%	98.46%	108.57%
5. Rate of Return on Actuarial Value of Assets for Prior Calendar Year	10.38%	1.05%	0.97%

SECTION 2 - PRINCIPAL VALUATION RESULTS

The **Actuarial Present Value of Future Benefits** is the present value of the cost to finance all benefits payable in the future, discounted to reflect the probability of payment and the time value of money. Below is the Actuarial Present Value of Future Benefits from the current valuation and the prior valuation:

Exhibit 2.2 - Actuarial Present Value of Future Benefits

Valuation Date	<u>1/1/2014</u>	<u>1/1/2012</u>
Actives		
Superannuation	\$83,657,268	\$68,258,944
Termination	2,153,250	1,930,693
Death	4,084,367	3,438,062
Disability	8,552,121	6,974,208
Total Actives	<u>\$98,447,006</u>	<u>\$80,601,907</u>
Retired Members and Inactives		
Retired Members and Beneficiaries	\$57,042,154	\$53,265,963
Disabled Members	4,135,337	4,002,482
Inactive Members	824,297	1,062,100
Total Retired Members and Inactives	<u>\$62,001,788</u>	<u>\$58,330,545</u>
Total Present Value of Future Benefits	\$160,448,794	\$138,932,452

The **Actuarial Accrued Liability** is the portion of the Actuarial Present Value of Future Benefits which is allocated to all periods prior to a valuation year and therefore is not provided for by future Normal Costs. Below is the Actuarial Accrued Liability from the current valuation and the prior valuation:

Exhibit 2.3 - Actuarial Accrued Liability

Valuation Date	<u>1/1/2014</u>	<u>1/1/2012</u>
Actives		
Superannuation	\$62,148,543	\$50,891,617
Termination	747,854	910,455
Death	1,886,119	1,636,066
Disability	3,624,355	2,998,303
Total Actives	<u>\$68,406,871</u>	<u>\$56,436,441</u>
Retired Members and Inactives		
Retired Members and Beneficiaries	\$57,042,154	\$53,265,963
Disabled Members	4,135,337	4,002,482
Inactive Members	824,297	1,062,100
Total Retired Members and Inactives	<u>\$62,001,788</u>	<u>\$58,330,545</u>
Total Actuarial Accrued Liability	\$130,408,659	\$114,766,986

Hingham Contributory Retirement System
Actuarial Valuation as of January 1, 2014

SECTION 2 - PRINCIPAL VALUATION RESULTS

The **Normal Cost** is the portion of the Actuarial Present Value of Future Benefits which is allocated to a valuation year. Only active employees who have not reached Normal Retirement Age incur a Normal Cost. Below is the Normal Cost from the current valuation and the prior valuation:

Exhibit 2.4 - Normal Cost

Valuation Date	<u>1/1/2014</u>	<u>1/1/2012</u>
Actives		
Superannuation	\$2,714,571	\$2,198,931
Termination	322,252	257,761
Death	290,164	237,765
Disability	515,237	412,425
Total Actives	<u>\$3,842,224</u>	<u>\$3,106,882</u>
As of Percentage of Salary	14.2%	13.3%
Administrative Expenses	\$150,000	\$150,000
As of Percentage of Salary	0.6%	0.6%
Total Normal Cost		
Normal Cost	\$3,992,224	\$3,256,882
As a Percentage of Salary	14.8%	14.0%
Employee Normal Cost		
Employee Contributions	\$2,372,795	\$1,973,652
As a Percentage of Salary	8.8%	8.5%
Employer Normal Cost		
Employer Normal Cost	\$1,619,429	\$1,283,230
As a Percentage of Salary	6.0%	5.5%

Exhibit 2.5 - Unfunded Actuarial Accrued Liability

Valuation Date	<u>1/1/2014</u>	<u>1/1/2012</u>
Unfunded Actuarial Accrued Liability		
a. Actuarial Accrued Liability	\$130,408,659	\$114,766,986
b. Actuarial Value of Assets	88,826,629	79,699,481
c. Unfunded Actuarial Accrued Liability (a. - b.)	\$41,582,030	\$35,067,505
d. Funded Ratio (b. divided by a.)	68.1%	69.4%

SECTION 2 - PRINCIPAL VALUATION RESULTS

Exhibit 2.6 - Actuarial Experience

In performing the actuarial valuation, various assumptions are made regarding mortality, retirement, disability and withdrawal rates as well as salary increases and investment returns. A comparison of the results of the current valuation and the prior valuation is made to determine how closely actual experience relates to expected. During the two years since the last valuation, the total unfunded actuarial accrued liability of the System was expected to decrease by \$2,276,931. Below is the development of the Actuarial Gain or Loss for the current 2-year period:

Calendar Year Ending	<u>12/31/2013</u>	<u>12/31/2012</u>
Expected Unfunded Actuarial Accrued Liability		
a. Unfunded Actuarial Accrued Liability, beginning of year	\$34,118,129	\$35,067,505
b. Normal cost, beginning of year	\$3,403,442	3,256,882
c. Total contributions	7,435,310	6,992,509
d. Interest (full year on a. and b., one-half year on c.)	2,704,313	2,786,251
e. Expected Unfunded Actuarial Accrued Liability	\$32,790,574	\$34,118,129
f. Unfunded Actuarial Accrued Liability (before changes)	\$38,436,358	
g. (Gain)/Loss	\$5,645,784	
Asset (gain)/loss		
a. Actuarial value of assets, beginning of year	\$80,312,433	\$79,699,481
b. Contributions and Receipts	7,435,310	6,992,509
c. Benefit Payments and Expenses	(7,264,781)	(7,216,863)
d. Assumed rate of return	8.00%	8.00%
e. Expected return	6,431,816	6,366,984
f. Actuarial value of assets, end of year	88,826,629	80,312,433
g. Actual return	8,343,667	837,306
h. Actual rate of return	10.38%	1.05%
i. Asset (gain)/loss	(\$1,911,851)	\$5,529,678
j. Total asset (gain)/loss, 2-year period	\$4,060,201	
Actual Unfunded Actuarial Accrued Liability		
a. Changes due to:		
i) Asset (gain)/loss	\$4,060,201	
ii) (Gain)/loss from demographic experience	1,585,583	
iii) (Gain)/loss prior to changes	5,645,784	
iv) Plan change - apply Chapter 176	-	
v) Plan change - increase COLA base	-	
vi) Assumption change - Investment Return Rate	3,145,672	
vii) Assumption change - Decrements	-	
viii) Total changes	8,791,456	
b. Unfunded Actuarial Accrued Liability, end of year	\$41,582,030	

SECTION 3 - CHAPTER 32 OF M.G.L. APPROPRIATIONS

Exhibit 3.1 - Annual Appropriations

The **Annual Appropriation** is determined in accordance with the requirements set forth in Section 22D of Chapter 32 of the Massachusetts General Laws ("M.G.L."). The appropriation is comprised of the annual employer normal cost and amortization payments to pay the unfunded actuarial accrued liability. Below are the details of the annual appropriations for the current and prior valuations, adjusted for annual payments made each July 1. The appropriations shown are based on the results of the valuations and do not account for any adjustments made to appropriations in the selected funding schedule.

Amortization Payments	<u>1/1/2014</u>	<u>1/1/2012</u>
a. Unfunded Actuarial Accrued Liability		
Fully Funded Year	2038	2040
Original Balance	\$41,582,030	\$35,067,505
Amortization Amount	\$2,527,154	\$1,990,770
Remaining Payment Period (from Valuation date)	24	28
Balance as of valuation date	\$41,582,029	\$35,067,505
b. Total Amortization Payments	\$2,527,154	\$1,990,770
Normal Cost	\$1,619,429	\$1,283,230
Net 3(8)(c) Transfers	\$0	\$0
Total Appropriation as of January 1	\$4,146,583	\$3,274,000
Adjusted for Payment as of July 1	\$4,304,265	\$3,402,441

SECTION 3 - CHAPTER 32 OF M.G.L. APPROPRIATIONS

Exhibits 3.2 and 3.3, are based on the assumptions below:

- Total Normal Cost is expected to increase 4.50% per year.
- The Employee Contribution rate will increase linearly from the 2014 percentage to 10.50% by 2028 as members contributing at the lower rates are replaced by new members contributing over 9%.
- Employer Normal Cost is the difference between Total Normal Cost and Employee Contributions.
- The Unfunded Actuarial Accrued Liability ("UAL") is computed as of January 1 of each year assuming no future gains or losses.
- The Amortization Payment of UAL is to be paid over 24 years through 2038.
- Total Employer Cost is the sum of the Employer Normal Cost and the Amortization of the UAL, both computed as of January 1 of each year and adjusted for annual payments made on July 1.
- For fiscal year 2015, we show the actual appropriation developed under the previous funding schedule of \$4,182,459. For fiscal years 2016 through 2020, the Board has opted to retain the appropriations from the funding schedule developed and adopted in the January 1, 2012 valuation. For the following fiscal years, payments increasing at 4% each year are made to fully fund the unfunded actuarial accrued liability by fiscal year 2038.
- Expected benefit payments include payments expected to be made to retired members, beneficiaries, disabled members and active members expected to retire. In addition, expected benefit payments include distribution of the annuity savings fund attributed to inactive members.
- Benefit payments exclude cost-of-living increases granted to members in pay status between 1982 and 1997. In addition, benefit payments are as expected for the first ten years of the forecast, then increase by the greater of 4.50% per year thereafter or the expected future payments for the current population projected by our computer model.

SECTION 3 - CHAPTER 32 OF M.G.L. APPROPRIATIONS

Exhibit 3.2 - 30-Year Forecast of Annual Appropriations

Fiscal Year Ending	Total Normal Cost	Employee Contributions	Employer Normal Cost	Amortization Payment of UAL	Net 3(8)(c) Transfers	Total Employer Cost	Increase over Prior Year	UAL as of January 1
2015	\$4,144,036	\$2,463,025	\$1,681,011	\$2,501,448	\$0	\$4,182,459		\$41,582,030
2016	4,330,517	2,619,879	1,710,638	2,612,523	-	4,323,161	3.36%	42,208,067
2017	4,525,390	2,785,863	1,739,527	2,728,584	-	4,468,111	3.35%	42,767,323
2018	4,729,034	2,961,481	1,767,553	2,849,856	-	4,617,409	3.34%	43,249,447
2019	4,941,839	3,147,261	1,794,578	2,976,577	-	4,771,155	3.33%	43,643,051
2020	5,164,223	3,343,765	1,820,458	3,128,990	-	4,949,448	3.74%	43,935,621
2021	5,396,613	3,551,582	1,845,031	3,378,754	-	5,223,785	5.54%	44,092,655
2022	5,639,459	3,771,332	1,868,127	3,513,905	-	5,382,032	3.03%	44,002,598
2023	5,893,236	4,003,666	1,889,570	3,654,461	-	5,544,031	3.01%	43,765,271
2024	6,158,431	4,249,273	1,909,158	3,800,639	-	5,709,797	2.99%	43,363,650
2025	6,435,561	4,508,878	1,926,683	3,952,665	-	5,879,348	2.97%	42,779,167
2026	6,725,161	4,783,243	1,941,918	4,110,772	-	6,052,690	2.95%	41,991,580
2027	7,027,793	5,073,169	1,954,624	4,275,202	-	6,229,826	2.93%	40,978,836
2028	7,344,044	5,379,503	1,964,541	4,446,210	-	6,410,751	2.90%	39,716,920
2029	7,674,526	5,703,134	1,971,392	4,624,058	-	6,595,450	2.88%	38,179,695
2030	8,019,879	5,959,775	2,060,104	4,809,020	-	6,869,124	4.15%	36,338,724
2031	8,380,774	6,227,965	2,152,809	5,001,381	-	7,154,190	4.15%	34,163,082
2032	8,757,909	6,508,224	2,249,685	5,201,437	-	7,451,122	4.15%	31,619,152
2033	9,152,015	6,801,094	2,350,921	5,409,494	-	7,760,415	4.15%	28,670,404
2034	9,563,855	7,107,142	2,456,713	5,625,874	-	8,082,587	4.15%	25,277,160
2035	9,994,229	7,426,964	2,567,265	5,850,909	-	8,418,174	4.15%	21,396,331
2036	10,443,969	7,761,177	2,682,792	6,084,945	-	8,767,737	4.15%	16,981,146
2037	10,913,947	8,110,431	2,803,516	6,328,343	-	9,131,859	4.15%	11,980,847
2038	11,405,075	8,475,400	2,929,675	6,581,477	-	9,511,152	4.15%	6,340,372
2039	11,918,304	8,856,793	3,061,511	-	-	3,061,511	-67.81%	-
2040	12,454,628	9,255,348	3,199,280	-	-	3,199,280	4.50%	-
2041	13,015,085	9,671,839	3,343,246	-	-	3,343,246	4.50%	-
2042	13,600,764	10,107,072	3,493,692	-	-	3,493,692	4.50%	-
2043	14,212,798	10,561,890	3,650,908	-	-	3,650,908	4.50%	-
2044	14,852,374	11,037,176	3,815,198	-	-	3,815,198	4.50%	-

Hingham Contributory Retirement System
Actuarial Valuation as of January 1, 2014

SECTION 3 - CHAPTER 32 OF M.G.L. APPROPRIATIONS

Exhibit 3.3 - 30-Year Forecast of Cash Flow

Calendar Year	Assets, BOY	Benefit Payments	Employee Contributions	Employer Contributions	Investment Return	Assets, EOY
2014	\$91,719,367	\$8,383,548	\$2,372,795	\$4,029,239	\$7,031,467	\$96,769,320
2015	96,769,320	8,181,202	2,523,903	4,164,787	7,441,787	102,718,595
2016	102,718,595	8,807,254	2,683,806	4,304,427	7,890,204	108,789,778
2017	108,789,778	9,486,959	2,852,990	4,448,255	8,346,511	114,950,575
2018	114,950,575	10,099,419	3,031,965	4,596,369	8,812,915	121,292,405
2019	121,292,405	10,695,171	3,221,270	4,768,130	9,295,313	127,881,947
2020	127,881,947	11,151,732	3,421,474	5,032,417	9,806,310	134,990,416
2021	134,990,416	11,629,278	3,633,173	5,184,869	10,352,822	142,532,002
2022	142,532,002	12,056,332	3,856,996	5,340,932	10,935,467	150,609,065
2023	150,609,065	12,490,359	4,093,606	5,500,625	11,559,978	159,272,915
2024	159,272,915	13,052,425	4,343,700	5,663,964	12,225,666	168,453,820
2025	168,453,820	13,639,784	4,608,014	5,830,956	12,931,140	178,184,146
2026	178,184,146	14,253,574	4,887,319	6,001,604	13,678,891	188,498,386
2027	188,498,386	14,894,985	5,182,431	6,175,900	14,471,580	199,433,312
2028	199,433,312	15,565,259	5,494,206	6,353,833	15,312,039	211,028,131
2029	211,028,131	16,265,696	5,741,445	6,617,482	16,203,293	223,324,655
2030	223,324,655	16,997,652	5,999,810	6,892,105	17,148,563	236,367,481
2031	236,367,481	17,762,546	6,269,802	7,178,159	18,151,290	250,204,186
2032	250,204,186	18,561,861	6,551,943	7,476,121	19,215,140	264,885,529
2033	264,885,529	19,397,145	6,846,780	7,786,490	20,344,028	280,465,682
2034	280,465,682	20,270,017	7,154,885	8,109,783	21,542,133	297,002,466
2035	297,002,466	21,182,168	7,476,855	8,446,541	22,813,914	314,557,608
2036	314,557,608	22,135,366	7,813,314	8,797,324	24,164,131	333,197,011
2037	333,197,011	23,131,457	8,164,913	9,162,722	25,597,870	352,991,059
2038	352,991,059	24,172,373	8,532,334	2,949,356	26,865,043	367,165,419
2039	367,165,419	25,260,130	8,916,289	3,082,077	27,941,427	381,845,082
2040	381,845,082	26,396,836	9,317,522	3,220,770	29,055,975	397,042,513
2041	397,042,513	27,584,694	9,736,811	3,365,704	30,209,610	412,769,944
2042	412,769,944	28,826,005	10,174,967	3,517,161	31,403,233	429,039,300
2043	429,039,300	30,123,175	10,632,841	3,675,433	32,637,718	445,862,117

SECTION 4 - REQUIRED DISCLOSURES

The Governmental Accounting Standards Board (GASB) requires certain disclosures of pension liabilities for public employer financial statements in accordance with Statement Numbers 25 and 27. Footnote disclosures required by GASB Statement Numbers 25 and 27 include a description of the Plan, a summary of significant accounting policies and information about contributions, legally required reserves and investment concentrations. The Annual Required Contribution (ARC) shown is for the fiscal year beginning the following July 1.

Below is the required disclosure information:

<u>Valuation Date</u>	<u>1/1/2014</u>	<u>1/1/2012</u>
1. Actuarial Accrued Liability	\$130,408,659	\$114,766,986
2. Actuarial Value of Assets	88,826,629	79,699,481
3. Unfunded Actuarial Accrued Liability (UAAL)	\$41,582,030	\$35,067,505
4. Funded Ratio = 2. ÷ 1.	68.1%	69.4%
5. Covered Payroll	\$27,037,796	\$23,273,757
6. UAAL as a Percentage of Covered Payroll = 3. ÷ 5.	153.8%	150.7%
7. Annual Required Contribution (ARC)	\$4,045,905	\$3,913,402
8. Net Pension Obligation	\$0	\$0

Schedule of Funding Progress

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a) / c)
1/1/2014	88,826,629	130,408,659	41,582,030	68.1%	27,037,796	153.8%
1/1/2012	79,699,481	114,766,986	35,067,505	69.4%	23,273,757	150.7%
1/1/2010	72,255,686	104,411,776	32,156,090	69.2%	22,266,750	144.4%
1/1/2009	62,299,932	99,303,172	37,003,240	62.7%	21,715,745	170.4%
1/1/2008	75,680,784	94,518,253	18,837,469	80.1%	19,856,230	94.9%
1/1/2007	64,778,166	88,204,142	23,425,976	73.4%	19,177,310	122.2%
1/1/2006	58,096,713	85,429,148	27,332,435	68.0%	18,005,014	151.8%
1/1/2004	53,284,103	75,260,838	21,976,735	70.8%	16,669,815	131.8%
1/1/2002	44,876,764	71,631,723	26,754,959	62.6%	14,811,862	180.6%
1/1/2000	48,884,485	57,861,551	8,977,066	84.5%	12,214,509	73.5%
1/1/1998	34,786,965	49,186,903	14,399,938	70.7%	10,919,733	131.9%

Hingham Contributory Retirement System
Actuarial Valuation as of January 1, 2014

SECTION 4 - REQUIRED DISCLOSURES

The most recent actuarial valuation of the System was prepared by KMS Actuaries, LLC as of January 1, 2014.

The normal cost for employees on that date was:	\$2,372,795	8.8% of payroll
The normal cost for the employer was:	\$1,619,429	6.0% of payroll

The actuarial liability for active members was:	\$68,406,871
The actuarial liability for retired and inactive members was:	62,001,788
Total actuarial liability:	\$130,408,659
System assets as of that date:	\$88,826,629
Unfunded actuarial accrued liability:	\$41,582,030

The ratio of System assets to total actuarial accrued liability was: 68.1%

The principal actuarial assumptions used in the valuation are as follows:

Investment Return:	7.75%
Rate of Salary Increase:	4.00% (all years)

Schedule of Funding Progress

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (b)	Unfunded AAL (UAAL) (b- a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a) / c)
1/1/2014	88,826,629	130,408,659	41,582,030	68.1%	27,037,796	153.8%
1/1/2012	79,699,481	114,766,986	35,067,505	69.4%	23,273,757	150.7%
1/1/2010	72,255,686	104,411,776	32,156,090	69.2%	22,266,750	144.4%
1/1/2009	62,299,932	99,303,172	37,003,240	62.7%	21,715,745	170.4%
1/1/2008	75,680,784	94,518,253	18,837,469	80.1%	19,856,230	94.9%
1/1/2007	64,778,166	88,204,142	23,425,976	73.4%	19,177,310	122.2%
1/1/2006	58,096,713	85,429,148	27,332,435	68.0%	18,005,014	151.8%
1/1/2004	53,284,103	75,260,838	21,976,735	70.8%	16,669,815	131.8%
1/1/2002	44,876,764	71,631,723	26,754,959	62.6%	14,811,862	180.6%
1/1/2000	48,884,485	57,861,551	8,977,066	84.5%	12,214,509	73.5%
1/1/1998	34,786,965	49,186,903	14,399,938	70.7%	10,919,733	131.9%

Hingham Contributory Retirement System
Actuarial Valuation as of January 1, 2014

SECTION 5 - SUMMARY OF PLAN PROVISIONS

Administration

There are 105 contributory retirement systems for public employees in Massachusetts. Each system is governed by a retirement board and all boards, although operating independently, are governed by Chapter 32 of the Massachusetts General Laws and other applicable statutes. This law in general provides uniform benefits, uniform contribution requirements and a uniform accounting and funds structure for all systems.

Participation

Participation is mandatory for all full-time employees. Eligibility with respect to part-time, provisional, temporary, seasonal or intermittent employment is governed by regulations promulgated by the local retirement board, and approved by PERAC. Membership is optional for certain elected officials.

There are four classes of membership in the Retirement System:

Group 1:	General employees, including clerical, administrative, technical and all other employees not otherwise classified.
Group 2:	Certain specified hazardous duty positions.
Group 3:	State police officers and inspectors.
Group 4:	Local police officers, firefighters and other specified hazardous positions.

For members in more than one group, participation will be proportional.

Member Contributions

Member contributions vary depending on the most recent date of membership:

Prior to 1975:	5% of Salary
1975 – 1983:	7% of Salary
1984 – June 30, 1996:	8% of Salary
July 1, 1996 – present:	9% of Salary
1979 – present:	An additional 2% of Salary in excess of \$30,000.
Group 1 members hired on or after April 2, 2012:	6% of Salary with 30 or more years of creditable service.

Rate of Interest

Interest on regular deductions made after January 1, 1984 is a rate established by PERAC in consultation with the Commissioner of Banks. The rate is obtained from the average rates paid on individual savings accounts by a representative sample of at least ten financial institutions.

SECTION 5 - SUMMARY OF PLAN PROVISIONS

Retirement Age	The mandatory retirement age for some Group 2 and Group 4 members is age 65. Most Group 2 and Group 4 members may remain in service after reaching age 65. Group 4 members who are employed in certain public safety positions are required to retire at age 65. There is no mandatory retirement age for members in Group 1.
Salary	Gross regular compensation. This does not include bonuses, overtime, severance pay, unused sick leave credit or other similar compensation.
Average Salary	<p>Membership before April 2, 2012: Average annual rate of regular compensation received during the three consecutive years that produce the highest average, or, if greater, during the last three years (whether or not consecutive) preceding retirement.</p> <p>Membership on or after April 2, 2012: Average annual rate of regular compensation received during the five consecutive years that produce the highest average, or, if greater, during the last five years (whether or not consecutive) preceding retirement.</p>
Creditable Service	The period during which a member contributes to the retirement system plus certain periods of military service and "purchased" service.
Benefit Rate	The benefit rate varies with the member's retirement age, Group, membership date and years of creditable service at retirement. Each year a member retires prior to the age at which the 2.5% maximum benefit rate applies, a reduction is applied to each year of age under the maximum age. The maximum age and reduction for each Group and membership date is as follows:

	<u>Group 1</u>	<u>Group 2</u>	<u>Group 4</u>
2.5% for Membership before April 2, 2012:			
Maximum age:	65	60	55
Reduction:	0.1%	0.1%	0.1%
2.5% for Membership on or after April 2, 2012 (less than 30 years of service):			
Maximum age:	67	62	57
Reduction:	0.15%	0.15%	0.15%
2.5% for Membership on or after April 2, 2012 (30+ years of service):			
Maximum age:	67	62	57
Reduction:	0.125%	0.125%	0.125%

Hingham Contributory Retirement System
Actuarial Valuation as of January 1, 2014

SECTION 5 - SUMMARY OF PLAN PROVISIONS

Superannuation Retirement	Eligibility if membership before April 2, 2012:	<ul style="list-style-type: none"> • completion of 20 years of Creditable Service, or • attainment of age 55 if hired prior to 1978, or • attainment of age 55 with 10 years of Creditable Service, if hired after 1978.
	Eligibility if membership on or after April 2, 2012:	<ul style="list-style-type: none"> • attainment of age 60 with 10 years of Creditable Service if classified in Group 1 • attainment of age 55 with 10 years of Creditable Service if classified in Group 2 • attainment of age 55 if hired prior to 1978 or if classified in Group 4
	Benefit Amount	Product of the member's Benefit Rate, Average Salary and Creditable Service.
	Maximum Benefit	80% of the member's Average Salary.
	Veteran's Benefit	Additional benefit of \$15 per year of Creditable Service, up to a maximum of \$300.
Deferred Vested	Eligibility	<ul style="list-style-type: none"> • completion of ten or more years of Creditable Service. • elected officials hired prior to 1978, completion of six years of Creditable Service.
	Benefit Amount	Accrued benefit payable commencing at age 55, or the completion of 20 years of Creditable Service, or may be deferred until later at the participant's option.
Withdrawal of Contributions		<p>Contributions may be withdrawn upon termination of employment.</p> <ul style="list-style-type: none"> • Members hired on or after January 1, 1984 who terminate with less than ten years of Creditable Service receive contributions plus interest on the Annuity Savings Account at an annual rate of 3%. • All other withdrawals receive contributions plus 100% of the regular interest that has accrued to the Annuity Savings Account.

SECTION 5 - SUMMARY OF PLAN PROVISIONS

Ordinary Disability Retirement	Eligibility	Non-job related disability after completion of ten years of Creditable Service.
	Benefit Amount for Group 1 membership before April 2, 2012 or Group 2 or Group 4	Superannuation benefit determined if the member is age 55, up to a maximum of 80% of Average Salary over three years. If the member is a veteran, 50% of final rate of salary (final year) plus an annuity based on the accumulated member contributions plus credited interest, up to a maximum of 80% of Average Salary over five years.
	Benefit Amount for Group 1 membership on or after April 2, 2012	Superannuation benefit determined if the member is age 60, up to a maximum of 80% of Average Salary over three years. If the member is a veteran, 50% of final rate of salary (final year) plus an annuity based on the accumulated member contributions plus credited interest, up to a maximum of 80% of Average Salary over five years.
Accidental Disability Retirement	Eligibility	Disabled as a result of an accident in the performance of duties. There is no minimum age or service requirement.
	Benefit Amount	72% of Salary plus an annuity based on accumulated member contributions plus credited interest.
	Maximum Benefit	100% of Salary if hired before January 1, 1988, otherwise 75% of Salary.
	Veteran's Benefit	Additional allowance of \$15 per year of Creditable Service, up to a maximum of \$300.
	Supplemental Dependent	Additional allowance of \$415 per year for each child.
Non-Occupational Death	Eligibility	For members with at least two years of creditable service who die while in active service, but not due to occupational injury.
	Benefit Amount	Benefit as if Option C had been elected. Minimum benefit of \$250 per month for surviving spouse, \$120 per month for first child and \$90 per month for each additional child.

SECTION 5 - SUMMARY OF PLAN PROVISIONS

Accidental Death	Eligibility	For members who die as a result of an occupational injury.
	Benefit Amount	72% of Salary plus an annuity based on accumulated member contributions plus credited interest.
	Maximum Benefit	100% of Salary if hired before January 1, 1988, otherwise 75% of Salary.
	Veteran's Benefit	Additional allowance of \$15 per year of creditable service, up to a maximum of \$300.
	Supplemental Dependent Allowance	Additional allowance of \$708.60 per year for each child until age 18 (or age 22 if a full-time student).
Cost-of-Living Adjustment (COLA)	In accordance with the adoption of Chapter 17 of the Acts of 1997, the granting of a Cost-of-Living Adjustment will be determined by an annual vote by the Retirement Board. The amount of increase will be based upon the Consumer Price Index, limited to a maximum of 3.0%, beginning on July 1. All retirees, disabled retirees and beneficiaries who have been receiving benefit payments for at least one year as of July 1 are eligible for the adjustment. The maximum amount of pension benefit subject to a COLA is \$12,000. All COLAs granted to members after 1981 and prior to July 1, 1998 are deemed to be an obligation of the Commonwealth of Massachusetts and are not the liability of the Retirement System.	
Optional Forms of Payment	A member may elect to receive his or her retirement allowance, payable in monthly installments, in one of three forms of payment: <ul style="list-style-type: none">• Option A – Total annual allowance commencing at retirement and terminating at member's death.• Option B – A reduced annual allowance commencing at retirement with death benefit equal to excess of member contributions plus credited interest to retirement over annuity benefit paid to member.• Option C – A reduced annual allowance commencing at retirement with 66⅔% of benefit continued to designated beneficiary upon death of member. For members who retired on or after January 12, 1988, if the beneficiary pre-deceases the retiree, the benefit payable increases based on the factor used to determine the Option C benefit at retirement.	

SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

Valuation Date: January 1, 2014

Investment Return: 7.75% per year. Previously, 8.00% per year.

Annuity Savings Fund Interest Rate: 3.00% per year

Amortization Method: *Unfunded Actuarial Accrued Liability (UAL):*
Increasing dollar amount at 4.00% to reduce the Unfunded Actuarial Accrued Liability to zero on or before June 30, 2038.

Salary Scale: The assumed annual rates for salary increases including longevity are illustrated by the following rates:

<u>Year</u>	<u>General Employees</u>	<u>Police and Fire</u>
Current valuation	4.00%	4.00%
Previous valuation	4.00%	4.00%

Cost-of-Living Allowance: Cost-of-Living Allowances (COLA) are assumed to be 3% of the pension amount, capped at \$360 per year. No change from previous valuation.

Mortality Table: RP-2000 Mortality Table Projected to 2014 with Scale AA. RP-2000 Mortality Table set forward two years for disabled members. Previously, RP-2000 Mortality Table projected to 2012 with Scale AA.

General Employees: 55% of deaths are job-related.

Police and Fire: 90% of deaths are job-related.

Turnover Rates: Illustrative turnover rates are shown below:

<u>Creditable Service</u>	<u>General Employees</u>	<u>Police and Fire</u>
0	0.1500	0.0150
10	0.0540	0.0150
20	0.0200	0.0000
30	0.0000	0.0000

SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

Disability Rates:

Illustrative disability rates are shown below:

<u>Attained Age</u>	<u>General Employees</u>	<u>Police and Fire</u>
20	0.0001	0.0010
30	0.0003	0.0030
40	0.0010	0.0030
50	0.0019	0.0125

General Employees: 55% of disabilities are accidental and 45% are ordinary.

Police and Fire: 90% of disabilities are accidental and 10% are ordinary.

Retirement Rates:

Illustrative retirement rates are shown below:

<u>Age</u>	<u>General Employees</u>		<u>Police and Fire</u>
	<u>Male</u>	<u>Female</u>	<u>Male & Female</u>
50	0.0100	0.0150	0.0200
51	0.0100	0.0150	0.0200
52	0.0100	0.0200	0.0200
53	0.0100	0.0250	0.0500
54	0.0200	0.0250	0.0750
55	0.0200	0.0550	0.1500
56	0.0250	0.0650	0.1000
57	0.0250	0.0650	0.1000
58	0.0500	0.0650	0.1000
59	0.0650	0.0650	0.1500
60	0.1200	0.0500	0.2000
61	0.2000	0.1300	0.2000
62	0.3000	0.1500	0.2500
63	0.2500	0.1250	0.2500
64	0.2200	0.1800	0.3000
65	0.4000	0.1500	1.0000
66	0.2500	0.2000	1.0000
67	0.2500	0.2000	1.0000
68	0.3000	0.2500	1.0000
69	0.3000	0.2000	1.0000
70	1.0000	1.0000	1.0000

SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

Actuarial Cost Method:	Individual Entry Age Normal.
Actuarial Asset Method:	<p>The Actuarial Value of Assets is the market value of assets as of the valuation date reduced by the sum of:</p> <ul style="list-style-type: none">a) 80% of gains and losses of the prior year,b) 60% of gains and losses of the second prior year,c) 40% of gains and losses of the third prior year andd) 20% of gains and losses of the fourth prior year. <p>Investment gains and losses are determined by the excess or deficiency of the expected return over the actual return on the market value. The actuarial valuation of assets is further constrained to be not less than 90% or more than 110% of market value.</p>
Census Data:	Census data as of the valuation date were submitted by the Retirement Board.
Asset Data:	Asset information is reported annually to the Public Employee Retirement Administration Commission by the Hingham Contributory Retirement System.
Dependents:	80% of all members will be survived by a spouse. Age assumption for spouses is that males are assumed to be three years older than females.
Administrative Expenses:	The anticipated administrative expenses for the fiscal year. For Fiscal Year 2015, the administrative expenses were assumed to be \$150,000 and is anticipated to increase at 4.5% per year.

SECTION 7 - PLAN MEMBER INFORMATION

Exhibit 7.1 - Active Members by Age and Years of Service as of January 1, 2014

Age	Years of Service									Total
	<u>0 to 4</u>	<u>5 to 9</u>	<u>10 to 14</u>	<u>15 to 19</u>	<u>20 to 24</u>	<u>25 to 29</u>	<u>30 to 34</u>	<u>35 to 39</u>	<u>40 & up</u>	
Under 20	-	-	-	-	-	-	-	-	-	0
	-	-	-	-	-	-	-	-	-	0
20-24	19	-	-	-	-	-	-	-	-	19
	22,694	-	-	-	-	-	-	-	-	22,694
25 to 29	40	8	-	-	-	-	-	-	-	48
	32,343	43,497	-	-	-	-	-	-	-	34,202
30 to 34	16	33	3	-	-	-	-	-	-	52
	73,477	58,818	69,031	-	-	-	-	-	-	63,918
35 to 39	7	11	13	-	-	-	-	-	-	31
	31,081	53,776	71,291	-	-	-	-	-	-	55,996
40 to 44	26	12	14	7	2	-	-	-	-	61
	26,881	41,387	62,317	66,677	95,355	-	-	-	-	44,679
45 to 49	33	18	7	7	5	9	-	-	-	79
	28,960	33,794	53,574	67,507	64,660	77,790	-	-	-	43,480
50 to 54	26	20	18	11	6	10	1	-	-	92
	32,375	35,688	57,475	47,964	80,681	68,102	77,414	-	-	47,393
55 to 59	16	20	26	9	6	5	6	5	-	93
	19,520	40,789	39,083	46,917	47,110	71,022	72,081	94,091	-	44,164
60 to 64	9	12	12	7	5	13	4	2	3	67
	30,731	31,856	42,092	34,557	49,255	51,413	69,639	107,551	104,380	46,676
65 to 69	5	2	9	8	7	6	1	1	1	40
	43,500	23,916	34,660	41,708	48,166	39,628	58,088	79,030	56,289	41,982
70 & up	1	2	3	1	3	2	2	1	-	15
	30,443	27,618	37,969	23,065	40,221	12,611	21,264	59,882	-	31,396
Total	198	138	105	50	34	45	14	9	4	597
Average Salary	32,582	43,481	51,076	49,755	58,378	59,280	63,505	91,608	92,357	45,289
Average Age:							48.8	Average Service:		10.8

Hingham Contributory Retirement System
Actuarial Valuation as of January 1, 2014

SECTION 7 - PLAN MEMBER INFORMATION

Exhibit 7.2 - Retired Plan Members and Beneficiaries Annual Pensions as of January 1, 2014

Attained Age	Male		Female		Total	
	Count	Total Payments	Count	Total Payments	Count	Total Payments
<20	0	0	0	0	0	0
20-24	0	0	0	0	0	0
25-29	0	0	0	0	0	0
30-34	0	0	0	0	0	0
35-39	0	0	0	0	0	0
40-44	0	0	0	0	0	0
45-49	0	0	1	8,292	1	8,292
50-54	1	11,529	1	37,229	2	48,758
55-59	6	252,394	6	60,334	12	312,728
60-64	23	1,059,683	17	214,654	40	1,274,337
65-69	27	832,967	31	410,262	58	1,243,229
70-74	28	873,136	19	345,252	47	1,218,388
75-79	16	473,679	23	366,585	39	840,264
80-84	17	467,785	24	346,209	41	813,994
85-89	10	212,801	19	222,362	29	435,163
90-94	4	45,773	5	92,833	9	138,606
95+	0	0	2	21,065	2	21,065
Total	132	4,229,747	148	2,125,077	280	6,354,824
Average Age	72.6		75.0		73.9	
Average Payment		32,044		14,359		22,696
	47.1%	66.6%	52.9%	33.4%	100.0%	100.0%

Included in above totals is \$83,780 in State reimbursed COLAs.

SECTION 7 - PLAN MEMBER INFORMATION

Exhibit 7.3 - Disabled Plan Members Annual Pensions as of January 1, 2014

Attained Age	Male		Female		Total	
	Count	Total Payments	Count	Total Payments	Count	Total Payments
<20	0	0	0	0	0	0
20-24	0	0	0	0	0	0
25-29	0	0	0	0	0	0
30-34	0	0	0	0	0	0
35-39	0	0	0	0	0	0
40-44	2	52,851	0	0	2	52,851
45-49	1	38,933	0	0	1	38,933
50-54	0	0	0	0	0	0
55-59	0	0	0	0	0	0
60-64	1	30,383	0	0	1	30,383
65-69	4	158,431	0	0	4	158,431
70-74	1	42,426	0	0	1	42,426
75-79	2	54,628	0	0	2	54,628
80-84	1	20,116	0	0	1	20,116
85-89	0	0	0	0	0	0
90-94	2	33,477	0	0	2	33,477
95+	0	0	0	0	0	0
Total	14	431,245	0	0	14	431,245
Average Age	68.6		0.0		68.6	
Average Payment		30,803		-		30,803
	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%

Included in above totals is \$12,317 in State reimbursed COLAs.

SECTION 8 - GLOSSARY OF TERMS

Actuarial Accrued Liability – That portion of the Actuarial Present Value of pension plan benefits which is not provided by future Normal Costs or employee contributions. It is the portion of the Actuarial Present Value attributable to service rendered as of the Valuation Date.

Actuarial Assumptions – Assumptions, based upon past experience or standard tables, used to predict the occurrence of future events affecting the commencement, amount and duration of pension benefits, such as: changes in compensation, mortality, withdrawal, disablement and retirement; rates of investment earnings and asset appreciation or depreciation; and any other relevant items.

Actuarial Cost Method (or Funding Method) – A procedure for allocating the Actuarial Present Value of all past and future pension plan benefits to the current year (Normal Cost) and the past (Actuarial Accrued Liability).

Actuarial Gain or Loss (or Experience Gain or Loss) – A measure of the difference between actual experience and that expected based upon the set of Actuarial Assumptions, during the period between the valuation date and the most recent immediately preceding valuation date.

Actuarial Present Value – The dollar value on the valuation date of all benefits expected to be paid to current members based upon the Actuarial Assumptions and the terms of the Plan.

Amortization Payment – That portion of the pension plan appropriation which represents payments made to pay interest on and the reduction of the Unfunded Accrued Liability.

Annual Required Contribution (ARC) – The employer's periodic required contributions to a defined benefit pension plan, calculated in accordance with the rules required by the Governmental Accounting Standards Board (GASB).

Annual Statement – The statement submitted by the local retirement board to PERAC each year that describes the asset holdings and Fund balances as of December 31 and the transactions during the calendar year that affected the financial condition of the retirement system.

Annuity Reserve Fund – The fund into which total accumulated Member Contributions, including interest, is transferred at the time a member retires, and from which annuity payments are made.

Annuity Savings Fund – The fund in which Member Contributions plus interest credited are held for active members and for former members who have not withdrawn their contributions and are not yet receiving a benefit (inactive members).

SECTION 8 - GLOSSARY OF TERMS

Assets – The total value of the investments held by the Plan trust that are for the payment of promised benefits.

Cost of Benefits – The estimated payment from the pension system for benefits for the fiscal year.

Expense Fund – The fund into which the appropriation for administrative expenses is paid and from which all such expenses are paid.

Funded Ratio – The Actuarial Value of Assets expressed as a percentage of the Actuarial Accrued Liability.

Funding Schedule – The schedule based upon the most recently approved actuarial valuation which sets forth the amount which would be appropriated to the pension system in accordance with Section 22D of M.G.L. Chapter 32.

GASB – Governmental Accounting Standards Board.

Normal Cost – Total Normal Cost is that portion of the Actuarial Present Value of pension plan benefits which is expected to accrue in the current fiscal year. The Employee Normal Cost is the amount of the expected Member Contributions for the current fiscal year. The Employer Normal Cost is the difference between the Total Normal Cost and the Employee Normal Cost.

Pension Benefit Obligation – The portion of the Actuarial Present Value attributable to past service in accordance with the Projected Unit Credit cost method as stipulated by GASB Statement Number 5 (GASB 5). GASB 5 has been superseded by GASB Statements Number 25 and 27.

Pension Fund – The fund into which appropriation amounts as determined by PERAC are paid and from which pension benefits are paid.

Pension Reserve Fund – The fund which shall be credited with all amounts set aside by a system for the purpose of establishing a reserve to meet future pension liabilities. These amounts would include excess interest earnings.

Present Value of Future Benefits – The actuarial present value of the cost to finance benefits payable in the future, discounted to reflect the expected effects of the time value of money and the probabilities of payment.

Special Fund for Military Service Credit – The fund which is credited with amounts paid by the retirement board equal to the amount which would have been contributed by a member during a military leave of absence as if the member had remained in active service of the retirement board. In the event of retirement or a non-job related death, such amount is transferred to the Annuity Reserve Fund. In the event of termination prior to retirement or death, such amount shall be transferred to the Pension Fund.

Unfunded Actuarial Accrued Liability – The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets.

SECTION 9 - RESULTS BY DEPARTMENT

	Town	Police & Fire	Subtotal Town	Light Plant	Housing Authority	SSREC	Total
Summary of Member Data							
Active Members	440	102	542	27	4	24	597
Salary	15,446,632	8,033,685	23,480,317	2,168,571	180,476	1,208,432	27,037,796
Average Salary	35,106	78,762	43,322	80,317	45,119	50,351	45,289
Average Age	50.5	41.7	48.9	51.1	49.9	44.9	48.8
Average Service	9.6	14.9	10.6	14.6	8.4	10.6	10.8
Retired Members and Survivors	173	86	259	17	2	2	280
Annual Pensions	2,592,792	3,184,247	5,777,039	495,274	31,375	51,136	6,354,824
Average Pension	14,987	37,026	22,305	29,134	15,688	25,568	22,696
Average Age	74.9	72.2	74.0	72.5	77.3	65.2	73.9
Disabled Members	0	12	12	2	0	0	14
Annual Pensions	0	380,666	380,666	50,579	0	0	431,245
Average Pension	0	31,722	31,722	25,290	0	0	30,803
Average Age	0.0	70.8	70.8	55.0	0.0	0.0	68.6
Inactive Members	133	4	137	3	0	2	142
Annuity Savings Fund	583,931	96,837	680,768	134,320	0	9,209	824,297
Unfunded Actuarial Accrued Liability - January 1, 2014							
Actuarial Accrued Liability							
Active Employees	36,011,805	23,335,956	59,347,761	6,654,422	339,626	2,065,062	68,406,871
Retired Members and Survivors	22,445,294	29,389,004	51,834,298	4,430,042	238,755	539,059	57,042,154
Disabled Members	0	3,552,460	3,552,460	582,877	0	0	4,135,337
Inactive Members	583,931	96,837	680,768	134,320	0	9,209	824,297
Total	59,041,030	56,374,257	115,415,287	11,801,661	578,381	2,613,330	130,408,659
Actuarial Value of Assets	39,511,364	37,794,562	77,305,926	10,005,692	575,470	939,541	88,826,629
Unfunded Actuarial Accrued Liability	19,529,666	18,579,695	38,109,361	1,795,969	2,911	1,673,789	41,582,030
Funded Ratio	66.9%	67.0%	67.0%	84.8%	99.5%	36.0%	68.1%
Normal Cost - January 1, 2014							
Total Normal Cost	2,114,875	1,174,825	3,289,700	328,557	25,956	198,011	3,842,224
Administrative Expenses	82,565	45,865	128,430	12,827	1,013	7,730	150,000
Total Normal Cost	2,197,440	1,220,690	3,418,130	341,384	26,969	205,741	3,992,224
Employee Normal Cost	(1,332,274)	(718,208)	(2,050,483)	(194,892)	(19,272)	(108,149)	(2,372,795)
Employer Normal Cost	865,166	502,482	1,367,647	146,492	7,697	97,592	1,619,429

Hingham Contributory Retirement System
Actuarial Valuation as of January 1, 2014

SECTION 9 - RESULTS BY DEPARTMENT

30-Year Forecast of Annual Appropriations

Year	Town	Police & Fire	Subtotal Town	Light Plant	Housing Authority	SSREC	Total
2015	1,636,050	2,209,437	3,845,487	246,899	3,487	86,586	4,182,459
2016	2,140,907	1,698,110	3,839,017	267,580	8,314	208,250	4,323,161
2017	2,210,850	1,758,933	3,969,783	275,206	8,459	214,663	4,468,111
2018	2,282,781	1,821,815	4,104,596	282,979	8,601	221,233	4,617,409
2019	2,356,734	1,886,821	4,243,555	290,898	8,739	227,963	4,771,155
2020	2,442,144	1,962,954	4,405,098	299,821	8,872	235,657	4,949,448
2021	2,572,577	2,082,178	4,654,755	312,832	9,006	247,192	5,223,785
2022	2,648,392	2,149,732	4,798,124	320,758	9,125	254,025	5,382,032
2023	2,725,862	2,219,189	4,945,051	328,769	9,237	260,974	5,544,031
2024	2,804,982	2,290,582	5,095,564	336,854	9,340	268,039	5,709,797
2025	2,885,746	2,363,948	5,249,694	345,005	9,435	275,214	5,879,348
2026	2,968,142	2,439,321	5,407,463	353,212	9,518	282,497	6,052,690
2027	3,052,157	2,516,734	5,568,891	361,464	9,590	289,881	6,229,826
2028	3,137,772	2,596,220	5,733,992	369,747	9,649	297,363	6,410,751
2029	3,224,961	2,677,813	5,902,774	378,048	9,694	304,934	6,595,450
2030	3,359,225	2,787,984	6,147,209	394,061	10,128	317,726	6,869,124
2031	3,499,098	2,902,699	6,401,797	410,756	10,582	331,055	7,154,190
2032	3,644,813	3,022,147	6,666,960	428,159	11,057	344,946	7,451,122
2033	3,796,614	3,146,523	6,943,137	446,303	11,553	359,422	7,760,415
2034	3,954,760	3,276,031	7,230,791	465,218	12,071	374,507	8,082,587
2035	4,119,511	3,410,884	7,530,395	484,939	12,613	390,227	8,418,174
2036	4,291,150	3,551,302	7,842,452	505,498	13,177	406,610	8,767,737
2037	4,469,960	3,697,516	8,167,476	526,931	13,769	423,683	9,131,859
2038	4,656,248	3,849,767	8,506,015	549,276	14,386	441,475	9,511,152
2039	1,635,585	949,936	2,585,521	276,941	14,552	184,497	3,061,511
2040	1,709,186	992,683	2,701,869	289,404	15,207	192,800	3,199,280
2041	1,786,099	1,037,353	2,823,452	302,427	15,891	201,476	3,343,246
2042	1,866,474	1,084,034	2,950,508	316,036	16,606	210,542	3,493,692
2043	1,950,465	1,132,816	3,083,281	330,258	17,353	220,016	3,650,908
2044	2,038,236	1,183,792	3,222,028	345,119	18,134	229,917	3,815,198

SECTION 9 - RESULTS BY DEPARTMENT

Allocation of Actuarial Value of Assets

Department	Town	Police & Fire	Subtotal Town	Light Plant	Housing Authority	SSREC	Total
Actuarial Value of Assets, January 1, 2013							
AVA, 1/1/2012	40,223,771	29,799,720	70,023,491	9,136,617	539,374	-	79,699,482
Contributions							
Member	2,018,592	-	2,018,592	209,775	49,052	536,550	2,813,969
Employer	1,656,148	1,990,505	3,646,653	253,663	13,086	-	3,913,402
Other Receipts	144,829	78,449	223,278	18,265	2,449	21,146	265,138
Benefit Payments	(5,025,928)		(5,025,928)	(459,696)	(24,227)	(16,256)	(5,526,107)
Refunds	(341,862)		(341,862)	-	(79,525)	(32)	(421,419)
Other Disbursements	(860,564)	-	(860,564)	(73,698)	(16,633)	(2,611)	(953,506)
Investment Return	255,156	201,633	456,789	59,578	3,345	1,762	521,474
AVA, 1/1/2013	38,070,142	32,070,307	70,140,449	9,144,504	486,921	540,559	80,312,433
Actuarial Value of Assets, January 1, 2014							
AVA, 1/1/2013	38,070,142	32,070,307	70,140,449	9,144,504	486,921	540,559	80,312,433
Contributions							
Member	2,348,839	-	2,348,839	214,586	59,017	290,265	2,912,707
Employer	1,587,090	2,131,770	3,718,860	240,076	3,417	83,552	4,045,905
Other Receipts	269,630	146,036	415,666	31,147	4,277	25,608	476,698
Benefit Payments	(5,153,957)		(5,153,957)	(464,453)	(24,940)	(34,431)	(5,677,781)
Refunds	(223,515)		(223,515)	-	-	(25,497)	(249,012)
Other Disbursements	(1,213,978)	-	(1,213,978)	(104,851)	(5,630)	(13,529)	(1,337,988)
Investment Return	3,827,113	3,446,449	7,273,562	944,683	52,408	73,014	8,343,667
AVA, 1/1/2014	39,511,364.0	37,794,562	77,305,926	10,005,692	575,470	939,541	88,826,629

Hingham Contributory Retirement System
Actuarial Valuation as of January 1, 2014